The Working Group on Information Systems and Services (WGISS)
Report to the 17th CEOS Plenary

Colorado Springs
November 2003

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Please view as a slide show to see the animation

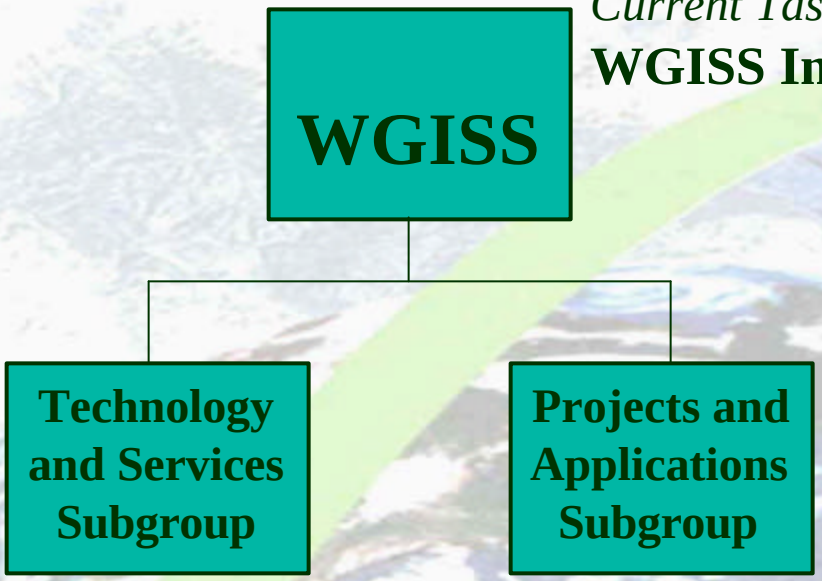
WGISS Report

- Overview
- Task Status
- New Initiatives
- Response to Plenary priorities
- Recommendations/ 3yr Accomplishments
- Questions
- Joint presentation with WGCV on WTF Core Test Sites

WGISS Overview

- **The Role of Information Systems & Services:**
- ***An essential element to the success of Earth observation programmes***
  - **users need to be able find and access products and services on a global basis**
  - **harmonised systems are essential to allow users to easily and efficiently utilise products globally**
  - **coordinated technical development is required if this is to be achieved**
- **WGISS:**
- ***The Working Group on Information Systems and Services (WGISS) is there to address these issues***
  - **facilitates EO data and information management and services for users and data providers on a global, regional and local basis.**

WGISS Structure



Current Tasks:

WGISS Information Infrastructure

Current Tasks:

International Directory Network
CEOS Interoperable Catalog System
Data Services
Networks
Archive
EOGEO Workshop
GRID

Current Tasks:

Global Datasets
Global Mapping Book
WTF CEOP
WTF Core Test Sites (WGCV)
Oil Spill Drift Prediction Project
CEOS EO Data Portal (Proposed)

Subgroup Leaders

- **Technology & Services Subgroup**
  - **Chair:** **Wyn Cudlip BNSC**
  - **Vice-Chair:** **Paul Kopp CNES**
- **Projects and Applications Subgroup**
  - **Chair:** **Ivan Petiteville ESA**
  - **Vice-Chair:** **Osamu Ochiai JAXA/NASDA**
- **Subgroup Chairs serve 2 year term**

Task Team Leaders

- **WGISS Level**
  - **WGISS Information Infrastructure — Jeff Smith (NASA)**
- **Technology & Services Subgroup**
  - **IDN — Lola Olsen (NASA)**
  - **CEOS ICS — Jolyon Martin (ESA)**
  - **Data Services — Bernhard Buckl (DLR)**
  - **Networks — Jeff Smith (NASA)**
  - **Archive — Stu Doescher (USGS)**
  - **GRID — Yonsook Enloe (NASA)**
  - **EO/GEO Workshop — Clive Best (EC/JRC)**

Task Team Leaders (Cont'd)

- **Projects and Applications Subgroup**
  - **Global Datasets** — **Lorant Czaran (UN)**
  - **Global Mapping Book** — **Mike Botts (NASA/UAH)**
  - **WTF CEOP** — **Osamu Ochiai (JAXA/NASDA)**
  - **WTF Core Test Sites (WGCV)** — **John Faundeen (USGS)**
  - **Oil Spill Drift Prediction Project** — **Ivan Petiteville (ESA)**
  - **CEOS EO Data Portal (Proposed)** — **W. Cudlip(BNSC)**

The Way We Work

- **Multi-Agency Task Teams focused on a specific application or technology element**
  - **CEOS Information Infrastructure and CDROM Task Teams retired at September 2003 meeting.**
- **Combined WGISS and Sub-Group Meetings**
  - **WGISS-15 hosted by CNES in Toulouse, France May 2003**
  - **WGISS-16 hosted by GISTDA and JAXA/NASDA in Chiang Mai, Thailand, September 2003**
  - **Reduced number of meetings from 4/year to 2/year**
- **Task Team, Subgroup and WGISS email lists**
- **Frequent telecons**

WGISS Meetings in 2004

- **WGISS-17 and joint Sub-Group meetings will be hosted by Norwegian Space Agency in May 2004 in Tromso, Norway**
- **WGISS-18 and joint Sub-Group meetings inSeptember 2004 to be confirmed**

WGISS Test Facility(WTF) Background

- **Framework for WGISS to work in partnership with selected international science and EO projects to test and develop information systems and services to meet their requirements.**
- **Specific WTFs have been established to address the needs of individual projects.**
- **WGISS sponsored projects will be demonstrated and improved in response to science and operational user requirements.**
- **WTF demonstrations advertise technical capabilities, promote science efforts, facilitate improvements, and encourage coordination of Information Systems and Services across the spectrum of EO space operations**

WGISS Liaison

Open GIS Consortium	Allan Doyle (NASA)
CCSDS	Wyn Cudlip (BNSC)
ISPRS	Liping Di (NASA)
ISO TC211	Lorant Czaran (UN)
Climate & Meteorology	Howard Diamond (NOAA)
Global Map Project	Osamu Ochiai (JAXA/NASDA)

WGISS Outreach

- With the support of JAXA/NASDA maintains the CEOS web site, www.ceos.org
- Updated WGISS web site to improve outside access to WGISS Information, including several project web sites
- Regular promotional activities at IDN nodes, e.g. various scientific conferences, tutorial at Joint Committee for Antarctic Data Management, ….
- Continued operation of demonstration portal developed for World Summit on Sustainable Development in Johannesburg at http://wgiss.ceos.org/gisd/
- EO WG at the Open GIS Consortium
- Distribution of the CEOS CDROM and operation of web site http://ceos.cnes.fr
- Two papers submitted for ISPRS conference in Istanbul July 04

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Status

- **Archive**
  - Purge alert in place
  - New agenda established from Agency survey
  - Archive interchange format completed and has been adopted by ESA's CRYOSAT Program
- **Discovery**
  - The International Directory Network (IDN) has been operational since 1990 and has 13,000+ data set descriptions with 50,000+ user sessions / month
- **Search**
  - CEOS Interoperable Catalog System provides access to 2000+ catalogues

Status

- Access
  - Established and maintain a virtual CEOSnet, with regular network performance monitoring
  - Adopted several OGC implementation standards that promote interagency interoperability
  - Conducted pilot/demontration projects using OGC standards to demonstrate interagency interoperability, e.g. WSSD, GOFC,
- Guidelines
  - Data format and browse guidelines issued
- Data rescue
  - African data sets rescued by USGS at WGISS instigation for developing countries

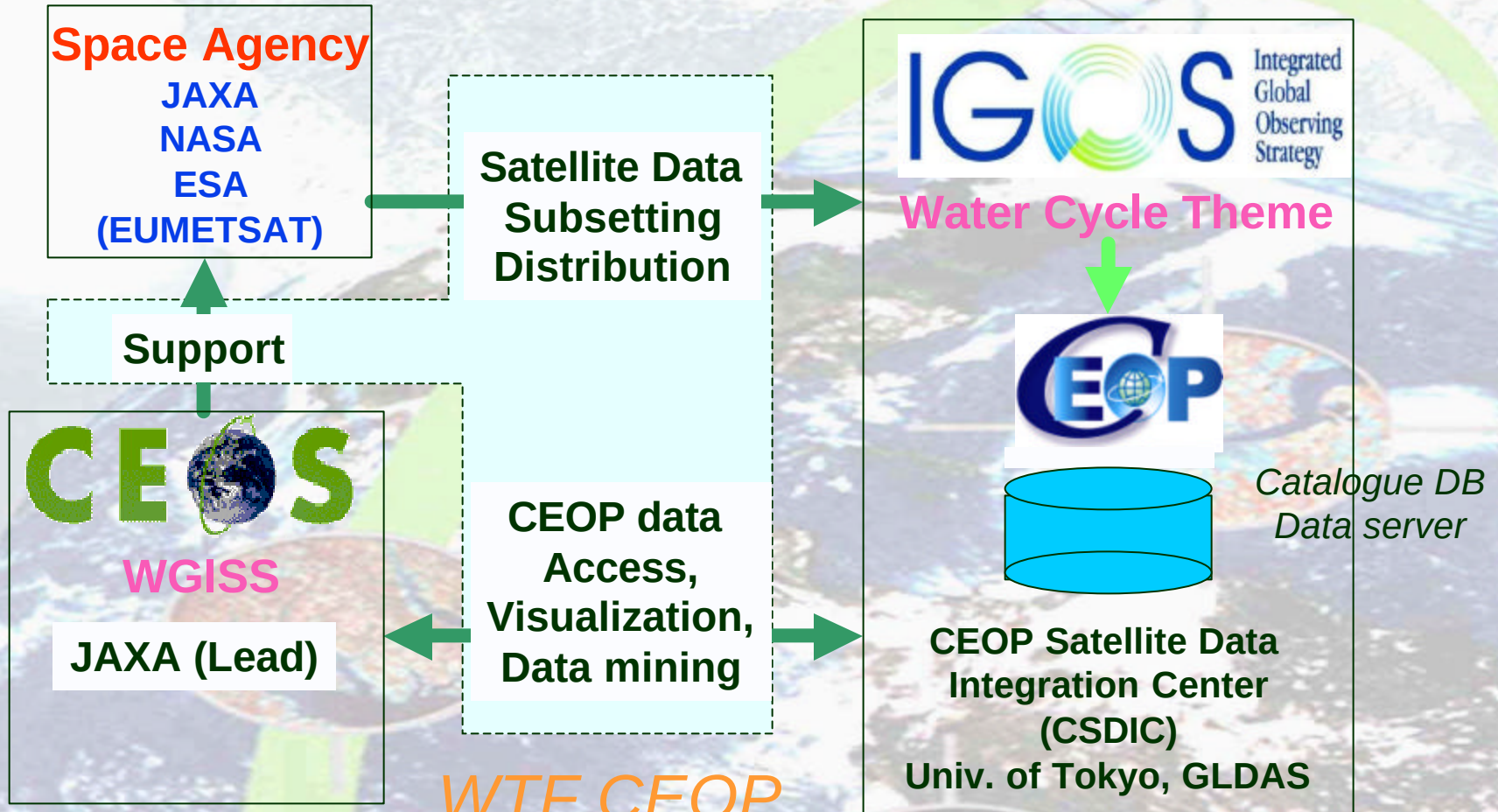
WGISS Test Facility Status

- **Core Test Sites**
  - Completed Phase 1
  - Joint presentation with WGCV immediately after WGISS report
  - Demonstration at this Plenary
- **Coordinated Enhanced Observing Period**
  - Completed draft Project Plan, with steadily greater understanding of CEOP science requirements (determining a wide variety of science requirements and possible WGISS roles)
- **Oil Spill Drift Prediction Project**
  - Developed pilot application
- **CEOS EO Data Portal Project**
  - Completed project plan
  - Seeking approval at this Plenary

WGISS Test Facility Coordinated Enhanced Observing Period (WTF/CEOP)

- **Objective**
  - Support the development and implementation of the IGOS Water Cycle Theme
  - Provide information system and service input into the data handling (EO and in-situ) issues related to numerical models and data analysis
  - Aid in the development of the Coordinated Enhanced Observing Period (CEOP) data sets

WTF CEOP
Summary



WTF-CEOP Status

- CEOP science areas with request for support, main theme is “data integration”
  - Integration of Satellite, In-situ and Model output data with various science analysis requirements (e.g. development and validation of soil moisture, snow and precipitation algorithms; perhaps validation of climate model output data)
  - Complicated, but very good potential for defining future data utilization technologies
- WGISS is working with CEOP scientists to determine CEOS member technologies that can be applied to CEOP
- Project Plan was completed October 31, 2003

GRID

- **What is GRID?**
  - Basic middleware services for seamless distributed computing and data management
  - IBM has stated, “GRID is the next Internet”
- **Why GRID?**
  - To authenticate users and providers of data
  - To improve performance of data reception and delivery of data
  - To provide a scalable infrastructure for the management of distributed storage resources and data
  - Offers potential solutions to a number of agency problems

Grid Status

- **CEOS Grid Task Team is coordinating the following application projects:**
  - **ESA Data Integration Project**
  - **NOAA NOMADS**
  - **NASA Advanced Data Grid**
  - **George Mason University EOSDIS Data Pools**
  - **University of Alabama Scientific Data Mining Project**
  - **USGS Data Delivery Project**
- **Many issues are common to all six projects. Project team is working together to gain insight into these common problems.**

Grid Status (Cont'd)

Accomplishments :

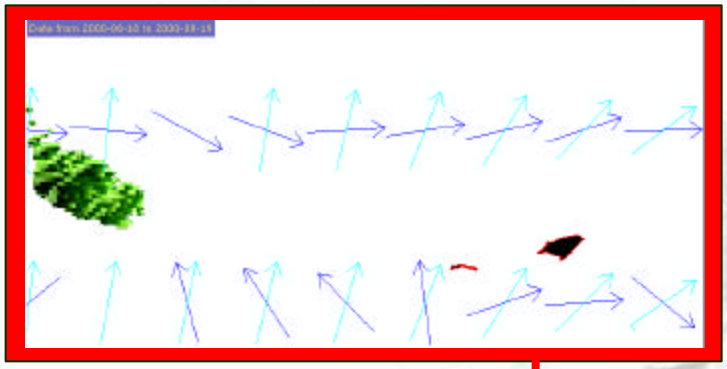
- **All 6 Grid Application Projects have installed and tested common Grid software**
- **Grid monitoring prototype working**
- **CEOS Certificates for secure access being tested**
- **Firewall Best Practices document drafted**
- **Identified and studying technical areas of common interest**

GRID – Future Work

- Get Application Projects working on the Grid
- Explore potential additional collaborations and extensions to the 6 Application projects
- Identify potential global science programs (e.g. WTF Core Test Sites, WTF CEOP, ...) that Grid can support

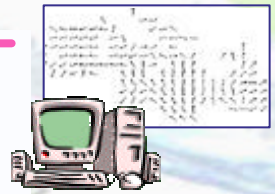
Oil Spill Drift Prediction Project

- **Background:** accurate Oil Spill Drift Predictions require input data from several distributed data providers (oil slick metadata, wind fields, sea surface currents, GIS layers,..) and several sophisticated drift models from various distributed service providers (e.g. tide models on North Sea not suitable for Mediterranean Sea) .
- **Objectives:** via a Web browser and a slow Internet connection, users can select and visualize in real time, the predicted drift of the selected oil spills using transparently distributed data & services providers. Implementation possible thanks to the most recent standards-based service-chaining technologies.



① Oil Slick Selection

Weather server

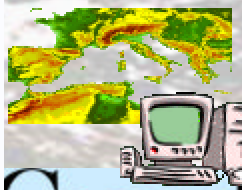


Oil Slick server

③ Drift Modelling

④ Oil Slick Drift Visualization

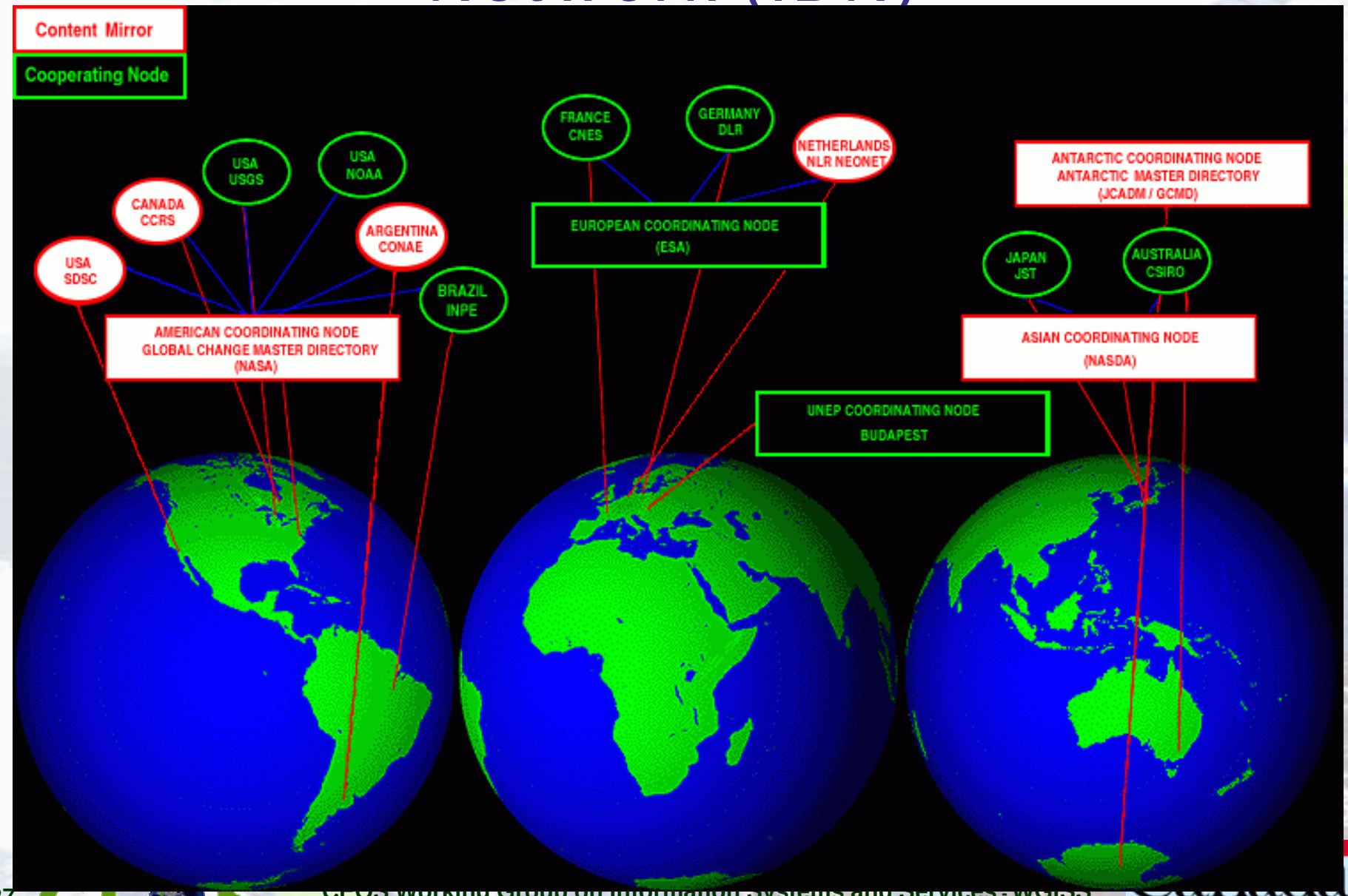
GIS server



CEOS International Directory Network

- Provides access to metadata for over 13,000 earth observation, geomatics and in-situ datasets
- Operational since 1990
- Developed 22 application portals tailored for different communities
- More than 50,000 user sessions/month, more than 1 million web hits/month

CEOS International Directory Network (IDN)



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WGISS Information Infrastructure

Task to renew the WGISS Web Site

http://wgiss.ceos.org

- Improve communication between WGISS members
- External promotion of WGISS activities
- Improve continuity as WGISS chairs change
- NASA is developing and hosting site


Welcome to the Working Group on Information Systems and Services - Microsoft Internet Explorer
File
Back
Address
http://64.176.252.162/wgiss/index.html
Go
Links
WGISS
CEOS Working Group on Information Systems and Services
Home
CEOS
Search
IGOS
About WGISS
Technology & Services
Projects & Applications
Meetings
Contacts
CEOSnet
Brochures
Newsletters
The CEOS Working Group on Information Services and Systems (WGISS)
The Working Group on Information Systems and Services (WGISS) aids ease of access by users and potential users to Earth Observation (EO) data holdings world-wide.
WGISS is one of two subgroups supporting the Committee on Earth Observing Satellites (CEOS). CEOS addresses coordination of the satellite EO programs of the world's government agencies responsible for civil EO satellite programs, along with agencies that receive and process data acquired remotely from space.
LATEST ADDITIONS
WGISS-16 Registration and Logistics, Chiang Mai, Thailand September 15-19 2003
Five Year Plan Final Version and the latest version of the WGISS organization structure
Done
Internet
Start
9:56 AM

CEOS EO Data Portal Project Background

- NASA has given the UN two global mosaics of Landsat data created from data in 1990 and in 2000
- Several UN Agencies have indicated requirements, e.g. IAEA (Atomic Energy Agency) and CTBTO (UN Comprehensive Nuclear-Test-Ban Treaty), the UN Cartographic Section and Department of Peacekeeping Operations (DPKO), UNEP and FAO.
- However, the UN presently lacks specific and dedicated resources to make this data easily and freely available online for developing products required by developing countries.
- Land elevation data is also becoming available from the Shuttle Radar Terrain Mapping mission and this could be used to enhance the applicability of the Landsat Data.

CEOS EO Data Portal Project
The Proposal

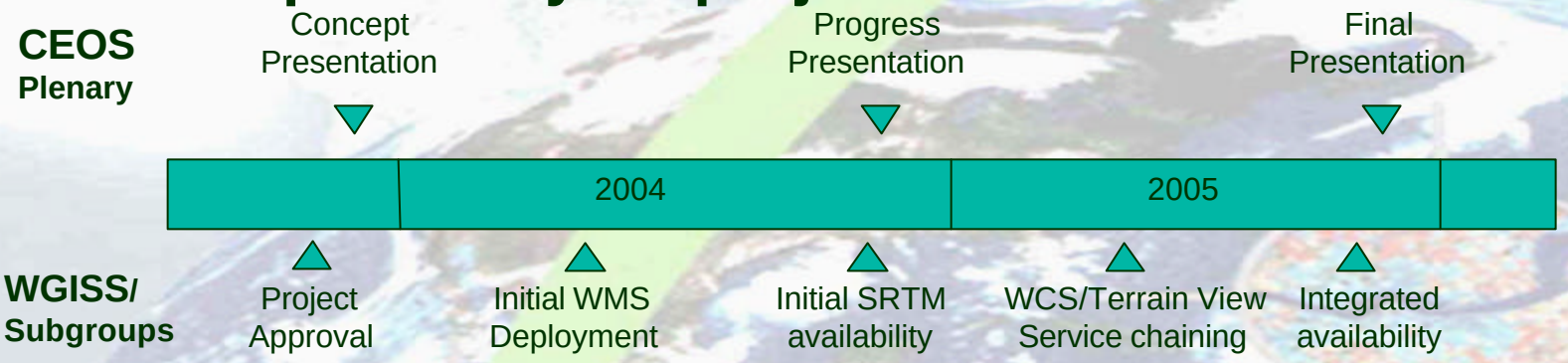
- **CEOS WGISS to assist the UN in promoting the exploitation of the Landsat and SRTM data by:**
  - **Coordinating the deployment of data mirror sites hosted by various Space Agencies around the world.**
  - **Working with standards bodies (e.g. the OGC) to accelerate the development of relevant standards.**
  - **Encouraging the development of standards-based software tools and associated web-based services.**
- **Phased development over two years, starting with simple map display capability, leading eventually to chained services that can be tailored for specific applications.**
- **Eleven WGISS Agencies have indicated an interest in working on and/or hosting EO Data Portal servers.**
- **Project could be linked to WSSD follow-up activities in Area 5 (GIS, Mapping etc.)**
- **ISPRS has indicated interest in working with WGISS on this project**

CEOS EO Data Portal Project
The Work Plan

- Phased development of a number of work packages:
- WP1 Overall Co-ordination and management
  - Resolve data policy issues
- WP2 Initial Server (WMS) deployment:
  - Work with Mosaic Project for Landsat 7 2000 data (3,2,1).
  - Develop WMS Server for Landsat 1990 RGB (7,4,2) data.
  - Initial client development; Use adaptation of UN and other suitable clients.
  - Further server deployment for Landsat 1975 dataset.
  - Establish links with vector (WFS) servers for overlay data.
- WP3 Initial WMS/WFS deployment for SRTM 90m resolution data
- WP4 3D Viewing development with OGC Terrain Specification
- WP5 Data Server (WCS) development/deployment with further client development including data processing
- WP6 Service chaining developments
- WP7 Possible integration with GRID activities

CEOS EO Data Portal Project Schedule

- **Proposed 2-year project**



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WGISS Actions From 2002 Plenary in Frascati

- Action 16-08: CEOS Members and Associates to send the WGISS Chair any nominations for the next WGISS Vice Chair by 31st March 2003
  - **ESA has nominated Ivan Petiteville, WGISS unanimously endorses Ivan for this position**
- Action 16-09: CEOS Working Group chairs to investigate closer links between Working Groups and the IGOS Themes and to report to the 17th CEOS Plenary
  - **WGISS has implemented a Test Facility in co-operation with the WGCV**
  - **WGISS is developing a Test Facility with the CEOP (Water Cycle)**
  - **WGISS has developed an Oil Spill Drift Prediction project to explore the use of WGISS capabilities in support of ocean applications**

WGISS Contributions to Priority Goals in CEOS 5 Year Plan

- User consultation - WGISS will obtain timely feedback on their endeavours through a process of consultation with the user community. It will endeavour to shape the work of the task teams towards meeting user requirements and to advise on consultation with users outside CEOS.
- ***Over the past two years WGISS has been focusing on user interaction through our WGISS Test Facility (WTF) activities, in fact this has become our prime method of moving forward. WGISS has also reorganized it's own structure to better address user requirements and to align better with Plenary objectives WGISS has updated the Terms of Reference for its User Vice-Chair to better focus WGISS activity***

WGISS Contributions to Priority Goals in CEOS 5 Year Plan

Priority Goal	WGISS Activity
User Consultation	WTF's, WGISS Reorg, User Vice Chair
Data Management	Archive, IDN, GRID, Network & ICS TTs
User Services	IDN & Interoperable Catalog Sys. TTs
Standards	ISO & OGC Coord. & Interop. projects
CEOS Info. Services	CEOS & WGISS Web SIte s
Promotion	WGISS Web Site, Demos at Plenaries/ WSSD, IDN, ICS, EO/GEO, confer. papers
Developing Country	CEOS CDROM, Data Rescue Project, Proposed Data Access Task
Glob. Science Supp	WTF Core Sites, WTF CEOP, Oceans Pilot

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- Data and information management - WGISS will define guidelines containing procedures and standards to be followed in the management of data to establish and maintain its quality, availability, accessibility and reliability. These guidelines will evolve in step with relevant technological developments.
- ***WGISS recognizes the importance of these activities and has Task Teams (Archive, IDN, Data Services, Network, GRID and ICS) producing best practices, technology demonstrators***

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- User services - WGISS will co-ordinate the provision of a comprehensive suite of global services - with the emphasis on capabilities offered by networks.
- ***The International Directory Network and the Interoperable Catalog System address this element in an ongoing, operational way***

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- Data standards - WGISS will recommend defined form and content for the distribution and interchange of data and metadata between agencies and with users.
- ***WGISS works closely with ISO, OGC and other standards-based organizations that affect the distribution and interchange of data. For example DLR and NASA participate on the OGC Revision Working Group for OpenGIS Consortium' s Web Coverage Server Specification.***
- ***WGISS projects and demonstrations use standards to achieve interagency interoperability.***

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- CEOS information services - WGISS will establish CEOS Information Services to support the work of WGISS members and to aid communication of information about CEOS to external bodies, users and potential users.
- ***With the assistance of JAXA/NASDA, WGISS supports the CEOS Plenary web site.***
- ***WGISS also maintains a site at wgiss.ceos.org and project web sites to support communication between members and as an important form of outreach.***

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- Promotion - WGISS will aim to ensure that the standards and initiatives recommended by CEOS are employed by Earth observation provider and user agencies. To this end, it will report its achievements to the CEOS Plenary and through CEOS publications.

- ***WGISS has revamped it's own web site to better promote WGISS activities. WGISS has prepared a number of demonstrations, e.g at CEOS Plenaries, WSSD in Johannesburg***
- ***WGISS has regular promotional activities through the IDN & ICS activities, the EO-GEO Conference, and the distribution of brochures. The two papers planned for ISPRS are relevant examples, also.***

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- Developing country issues – WGISS will endeavour to ensure that its work can contribute to the effective use of Earth observation in developing countries.

- ***The CEOS CDROM has been a concerted effort of WGISS's in the past. At the urging of the UN, WGISS has also supported environmental agencies in Africa, for over three years, by providing data rescue services for aging magnetic tapes. At the request of our UN representative WGISS is investigating as means to support developing countries by providing access to Landsat and SRTM data for the world.***

WGISS Contributions to Priority Goals in 5 Year CEOS Plan (Cont'd)

- WGISS will increase its focus on global science programmes by providing support to these through development of test facilities. WGISS propose to modify their organizational structure to reflect this new emphasis.
- ***WGISS has reorganized to provide a strong focus on serving Global Science programs. Much of the current WGISS activities are in this area, e.g. the WGISS Test Facility (WTF) for WGCV Core Test Sites and the WTF for CEOP***

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Plenary Recommendations

- **Approve**
  - John Faundeen as WGISS chair for the period November 2003 to November 2005
  - Ivan Petiteville as WGISS Vice-chair for the period November 2003 to November 2005
  - Implementation of the CEOS EO Data Portal Project
- **Information**
  - WGISS has closed its CD-ROM Task Team but CNES will maintain http://ceos.cnes.fr and will distribute remaining copies of CD-ROM
  - WGISS has closed the CEOS Information Infrastructure Task Team but JAXA/NASDA will continue to support CEOS Web site
- **Recognize**
  - NASA's contribution to the IDN

WGISS 3 year Accomplishments

- Alignment with CEOS Plenary priorities / 5 Year Plan
- Integration of EO Infrastructures with broader Spatial Data Infrastructures, e.g. endorsement of Open GIS Consortium standards for CEOS agency interoperability
- Multiple successful application demonstrations. GOFC at Kyoto Plenary (2001), WSSD demonstration at Johannesburg (2002), WTF Core Test Sites at Colorado Springs Plenary (2003)
- Stream lined organization, eliminated 2 meetings /year
- Developed close working relationship with WGCV
- Substantial increase in usage of CEOS IDN and Interoperable Catalog System
- WGISS WTF/GOFC work stimulated JAXA/NASDA to initiate operational Forest Fire and Forest Cover applications in Thailand and Digital Asia prototyping